



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Daniel Mui and Alexander Marquez

Assignee: ZiLOG, Inc.

Title: Use of Remote Controls for Audio-Video Equipment to Control Other Devices

Application No.: 09/655,733 Filing Date: September 6, 2000

Examiner: Brown, Vernal U. Group Art Unit: 2635

Docket No.: ZILG.237US0 Conf. No.: 9029

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SUBMISSION OF REVISED APPEAL BRIEF**

Sir:

A revised Appeal Brief is being submitted in triplicate in accordance with 37 C.F.R. § 41.37 and the Notice of Appeal filed in this application on October 21, 2004 and in response to the Notification of Non-Compliant Appeal Brief mailed May 12, 2005.

The Commissioner is authorized to deduct any amounts required for this revised Appeal Brief and to credit any amounts overpaid to Deposit Account No. 502664. This paper is submitted in duplicate in order to facilitate any transaction with the deposit account.

**EXPRESS MAIL  
LABEL NO:  
EV627889621US**

Respectfully submitted,

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May 17, 2005

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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**REVISED APPEAL BRIEF**

Sir:

This Appeal Brief is being submitted in triplicate in accordance with 37 C.F.R. § 41.37 and the Notice of Appeal filed in this application on October 21, 2004.

This Revised Appeal Brief adds reference to Appendices ix and x, with the indication that there are none, in response to the Notification of Non-Compliant Appeal Brief mailed May 12, 2005.

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I. REAL PARTY IN INTEREST

The real party in interest of the present application is ZiLOG, Inc., assignee of the two applicants.

II. RELATED APPEALS AND INTERFERENCES

There are no known prior or pending appeals, interferences or judicial proceedings that may be related to, directly affect or be directly affected by or have a bearing on the decision by the Board of Patent Appeals in the pending appeal.

III. STATUS OF CLAIMS

Claims 1 – 23 have been cancelled.

Claims 24 – 31 remain in the application and stand rejected.

The final rejection of all of claims 24 – 31 is the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendment has been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 24 recites apparatus “other than audio-video equipment” that includes a signal decoder that decodes infra-red signals from a plurality of different types of “audio-video equipment” remote controls whose signal pattern protocols are stored in an internal memory. Examples of such non-audio-video apparatus described in the present application include toys that emit sound. Any of a number of different types of audio-video remote controls can be used to mute and/or otherwise control the sound. Independent claim 29 defines this method of operation of the apparatus.

There are two features recited in combination in each of the independent claims 24 and 29 that are the primary subject of this appeal:

- (1) The structure of a database stored in the apparatus memory: A plurality of records of infra-red signal patterns for different remote control protocols are stored in a memory 55 of the apparatus (Figure 2; specification page 7, lines 5-6). One such record

is illustrated in Figure 5 of the present application, which is described in the middle paragraph of application page 8 (lines 10-22). An individual record contains bit patterns 77-81 that, when received from a remote control, cause respective volume up, volume down and mute functions a sound source to be implemented within the apparatus, such as a toy. The correct record is first selected for a particular remote control by use of protocol defining data fields 71-75. That is, data of an infra-red signal received from a remote control within a received header symbol 61 (Figure 3; specification page 8, lines 11-12) are compared with the fields 71-75 of each of multiple such records stored in the memory 55 of the receiver of Figure 2 (specification page 8, lines 21-22). Once the appropriate record for the signal protocol of the remote control being used is identified in this manner, one of the fields 77-81 of the identified record is matched with the bit pattern received from the remote control. The signal pattern of each of the fields 77-81 is linked to control a different aspect of the apparatus sound source. Others of the stored records need not be used.

(2) A search technique that finds a signal pattern within the memory that matches the pattern of a received infra-red signal: The correct record within the memory 55 (Figure 2) of the apparatus is first identified by matching the signal protocol fields 71 – 75 (Figure 5) with the received signal. The received infra-red signal pattern is then matched to one of the patterns 77 – 81 within the identified record to determine the function to be performed (such as adjusting the volume of sound emitted by the apparatus up, down or mute). This search technique is illustrated by the flowchart of Figure 6, described in the specification from page 8, line 23 through page 9, line 15.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

All of the claims 24 –31 have been finally rejected under 35 U.S.C. § 103(a) as unpatentable over United States patent no. 6,309,275 (hereinafter “Fong et al.”) in view of United States patent no. 4,807,052 (hereinafter “Amano”). It is this ground of rejection that is being appealed.

## VII. ARGUMENT

Each of the independent claims 24 and 29 contain both of the database structure and search technique features described in section V above. The main point of this argument is to demonstrate that neither of these features is suggested by either of the cited Fong et al. or Amano patents. The existing obviousness rejection is submitted to be in error for these reasons.

Claim Feature (1): Database Structure of Multiple Records Stored in the Receiver  
Individually Link Remote IR Signal Patterns with Specific Receiver Functions to be  
Performed in Response to Receipt of One of the Patterns

The pending claims specify that a plurality of records are stored in the memory of the receiver. These records individually link signal patterns emitted by a remote control to specific functions to be performed by the receiver, such as volume up, volume down or muting the sound. When a specific signal pattern is received, a selected one of the records containing data of that pattern then provides the specific function that is to be performed by the receiver. Claim 24 recites this feature as follows:

the individual records additionally including a link *within the record* of one or more signal patterns emitted by one of the remote controls with at least one specific function, (emphasis added)

And Claim 29 contains the following limitation:

the individual records storing one or more signal patterns that are individually linked *within the record* with one of the one or more functions to be performed by the device, (emphasis added)

As described above, this feature is illustrated in the present application specification primarily by the example record of Figure 5, which is described in the middle paragraph on application page 8 (lines 10-22). When the appropriate stored record is identified as corresponding to the remote control being used, a particular received bit pattern is mapped within that record to control a specified function. Others of the records are not used.

The Amano patent has been cited as disclosing this feature but it is submitted that Amano describes a different arrangement. A single such record is stored in the receiver of Figure 1 for the remote control 32A. When the signal patterns of second remote control 32B are learned by the receiver, a second record is created but this record links the signal patterns of the second remote control with those of the first remote control that cause the same functions to be

performed. (see Amano patent, column 8, line 64 – column 9, line 11). That is, there is only one record in the Amano patent that links the signals emitted by one remote control with the receiver functions to be performed, that being permanently stored in the receiver. The second record links the signals emitted by the second remote control with entries of the first record, not with the functions to be performed. There are no multiple records that individually link “within the record” (claims 24 and 29) the received remote control signal patterns with the receiver functions to be performed.

Looking at the Amano reference in more detail, a first set of remote control codes RC1A – RC1N (Figure 3) are related to specific functions of the receiver to be performed when each of the codes is received from the first remote control 32A. A second set of codes RC2A – RC2N learned from the second remote control 32B are not stored in this type of record. Rather, the record for the codes RC2A – RC2N links those codes to the first set of codes RC1A – RC1N. Instead of specifying *within the second record* the function to be performed when one of the second set of codes RC2A – RC2N is received, this second record refers instead to the contents of the first record of the codes RC1A – RC1N. There is nothing within the second record that links the codes RC2A – RC2N to the functions to be performed, contrary to what is claimed.

In an Advisory Action dated November 19, 2004, the Examiner made a response to this argument. The following was stated about the Amano reference: “The individual linking of the signal pattern with the function to be performed by the device is evidenced by the pressing of the button on the remote control which causes the code to be transmitted to the receiver and the receiver respond accordingly by ececuting a function (col. 6 lines 1-6).” That is, the Examiner finds the database structure feature of the claims to be anticipated by Amano since his result is the same. This ignores the specific claim limitations to the database structure, namely that the individual records of a plurality of records link *within the record* remote control signal patterns with the functions to be performed in response to receiving signals of those patterns.

Claim Feature 2: The Search Technique to Find in Multiple Records the Data of the Signal Pattern Being Received from the Remote Control

The application claims specify that one of the multiple remote control records is first identified by finding one that corresponds to the signal pattern being received, and then the incoming signal pattern is compared with the entries of the identified record to find a match. The

matched entry provides the receiver function designated by the remote control signal. This is described in the application specification with respect to the flowchart of Figure 6, and is to be contrasted with a search technique that simply compares the received signal pattern with each entry of every record in sequence until a match is found, which is what the Amano patent describes.

The Amano patent describes its search process beginning at column 8, line 19, and extending through column 9, line 11. The individual remote control signal data of the first record are first compared with the incoming signal pattern, one entry at a time. If a positive comparison does not occur by searching the first record, then the entries of the second record are compared with the incoming signal pattern, one at a time, until one is found that matches.

Independent claims 24 and 29 each specify a two-step search technique that is different than this. In the first step, the receiver identifies which of the multiple records match the “signal pattern protocols” (claim 24) or correspond “to the type of remote control” (claim 29) that is emitting the signal pattern. Only after one record is selected as corresponding to the remote control signals being received is the received signal pattern compared with the individual data entries of the selected record to find a match. This is clearly different than the one-step technique Amano describes of simply comparing the received remote control signal pattern with the individual entries of both its records, one at a time, until a match is found.

The final Office Action (last paragraph of page 2) additionally alleges that the Fong et al. patent describes this claimed feature but it is not seen that the cited portion of the Fong et al. patent (figure 2 and column 13, lines 35-40) describes anything about the receiver searching multiple remote control records. Another statement in the Office Action (page 3, lines 14-16) states that Fong et al. is “.. not explicit in teaching the receiver of the wireless control signal simultaneously storing protocols of the control signal emitted by a plurality of remote control[s].” Indeed, that is why the Amano patent is cited. If the Fong et al. patent does not disclose a receiver that stores data of multiple remote control signal protocols, as stated in the final Office Action, then there can be no disclosure of a process for identifying a signal data entry from multiple records.


Conclusion

Although it is submitted that the pending claims define both of the two novel features stressed above, and are allowable for that reason, the obviousness rejection would have to be overturned if only one of these features was to be held undisclosed by the cited Fong et al. and Amano patents.

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VIII. CLAIMS APPENDIX

24. Apparatus other than audio-video equipment, comprising:  
a photo-detector adapted to receive infra-red radiation and generate an output signal,  
a memory simultaneously storing a plurality of records that individually contain characteristics of a different one of a plurality of infra-red signal pattern protocols emitted by a plurality of different types of remote controls of audio-video equipment, the individual records additionally including a link within the record of one or more signal patterns emitted by one of the remote controls with at least one specific function,  
a signal decoder connected to receive the photo-detector output and to first identify a match between the signal pattern protocols of one of the stored records and then to identify a match between a pattern of the output signal and one of the signal patterns stored in the identified record for generating a control signal corresponding to the specific function to which the matched signal pattern is linked within the identified record, and  
a component of said apparatus other than audio-video equipment connected to receive the control signal and perform the specific function.
25. Apparatus according to claim 24, wherein the apparatus component includes a sound source and the specific function controls the sound source.
26. Apparatus according to claim 25, wherein the specific audio-video function of the matched signal pattern includes muting the sound of audio-video equipment and the specific function includes muting the sound source of said apparatus other than audio-video equipment.
27. Apparatus according to claim 25, wherein the specific audio-video function of the matched signal pattern includes raising or lowering the sound level of audio-video equipment and the specific function includes raising or lowering the level of the sound source of said apparatus other than audio-video equipment.

28. Apparatus according to any one of claims 24 – 27, wherein said apparatus other than audio-video equipment is installed within a toy.

29. A method of remotely controlling a device other than audio-video equipment to perform one or more functions, comprising:

simultaneously storing a plurality of records in the device other than audio-video equipment of characteristics of signals emitted by a plurality of different types of remote controls of audio-video equipment, the individual records storing one or more signal patterns that are individually linked within the record with one of the one or more functions to be performed by the device,

before comparing the signal received by the device from the remote control with the signal patterns of any of the records, comparing a signal received by the device from one of the different types of remote controls with the records stored in the device to identify one of the records corresponding to the type of remote control emitting the received signal,

thereafter comparing the signal received by the device from the remote control with the one or more signal patterns within the identified record in order to identify a signal pattern within the identified record having that of the received signal, and

executing one of the one or more functions in the device that is linked in the identified record with the identified signal pattern.

30. The method of claim 29, wherein the device other than audio-video equipment is installed within a toy.

31. The method of claim 30, wherein the one or more functions of the device other than audio-video equipment includes control of a sound generator therein.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.